

LISTING OF CLAIMS:

The following listing of claims replaces all previous versions and listings in the present application.

1. (Currently amended) A spark plug comprising:

a metal shell;

a center electrode retained in said metal shell and insulated from said metal shell; and

a ground electrode extending horizontally from said metal shell and opposed to ~~one of a first tip end and~~ an outer peripheral surface of said center electrode to define a spark gap between said ground electrode and said center electrode, said ground electrode being connected to said metal shell through a laser fused weld having a predetermined melt depth d ,

wherein said ground electrode has ~~the~~ a second tip end facing the ~~one~~, outer peripheral surface substantially along a line extending perpendicular to the longitudinal center line of said center electrode and intersecting the outer peripheral surface, ~~if the one includes said outer peripheral surface.~~

2. (Previously presented) A spark plug as set forth in claim 1, wherein the whole of said ground electrode is made of an alloy and connected at an end thereof directly through the laser fused weld to said metal shell.

3. (Currently amended) A spark plug as set forth in claim 1, wherein ~~[[a]]~~ the depth of the weld between said ground electrode and said metal shell is about 0.3 mm to 1.5 mm.

4. (Original) A spark plug as set forth in claim 1, wherein said metal shell is made of an Fe-base alloy containing one of 0.15% by weight or less of S, 0.35% by weight or less of Si, 0.25% by weight or less of C, 1.5% by weight or less of Mn, and 0.1% by weight or less of P.

5. (Original) A spark plug as set forth in claim 1, wherein said metal shell is made of an Fe-base alloy containing 0.15% by weight or less of S, 0.35% by weight or less of Si, 0.25% by weight or less of C, 1.5% by weight or less of Mn, and 0.1% by weight or less of P.

6. (Original) A spark plug as set forth in claim 1, wherein said ground electrode is made of an alloy containing a main component of 50 Wt % or more of Pt and an additive of at least one of Rh, Ir, Os, Ni, W, Pd, and Ru.

7. (Original) A spark plug as set forth in claim 1, wherein said ground electrode is made of an alloy containing a main component of 50 Wt % or more of Ir and an additive of at least one of Rh, Pt, Os, Ni, W, Pd, and Ru.

8. (Previously presented) A spark plug as set forth in claim 1, wherein said ground electrode is made of an Ir alloy including a main component of 50 Wt% or more of Ir and connected directly to said metal shell.

9. (Canceled).

10. (Currently amended) A spark plug as set forth in claim 2, wherein ~~the~~ the depth of the weld between said ground electrode and said metal shell is about 0.3 mm to 1.5 mm.

11. (Original) A spark plug as set forth in claim 8, wherein said metal shell is made of an Fe-base alloy containing one of 0.15% by weight or less of S, 0.35% by weight or less of Si, 0.25% by weight or less of C, 1.5% by weight or less of Mn, and 0.1% by weight or less of P.

12. (Original) A spark plug as set forth in claim 8, wherein said metal shell is made of an Fe-base alloy containing 0.15% by weight or less of S, 0.35% by weight or less of Si, 0.25% by weight or less of C, 1.5% by weight or less of Mn, and 0.1% by weight or less of P.

13. (Original) A spark plug as set forth in claim 8, wherein said ground electrode is made of an alloy containing a main component of 50 Wt % or more of Ir and an additive of at least one of Rh, Pt, Os, Ni, W, Pd, and Ru.

14. (Canceled)

15. (Previously presented) A spark plug as set forth in claim 1, wherein the center electrode includes a tip portion made of an Ir alloy.

16. (Canceled)

17. (Previously presented) A spark plug as set forth in claim 1, wherein the center electrode includes a tip portion made of a Pt alloy.

18. (Previously presented) A spark plug as set forth in claim 8, wherein the center electrode includes a tip portion made of an Ir alloy.

19. (Canceled)

20. (Previously presented) A spark plug as set forth in claim 8, wherein the center electrode includes a tip portion made of a Pt alloy.

21. (Canceled)

22. (Previously Presented) A spark plug as set forth in claim 1, wherein said ground electrode extends directly from said metal shell in a direction perpendicular to the longitudinal center line of said center electrode.

23. (New) A spark plug comprising:

- a metal shell;
- a center electrode retained in said metal shell and insulated from said metal shell; and
- a ground electrode extending horizontally from said metal shell and opposed to a first tip end of said center electrode to define a spark gap between said ground electrode and said center electrode, said ground electrode being connected to said metal shell through a laser fused weld having a predetermined melt depth d ,

wherein said ground electrode has a second tip end facing the first tip end of said center electrode, substantially along a longitudinal center line of said center electrode and wherein the laser fused weld is located far from the second tip end to avoid a rise in temperature of the weld.

24. (New) A spark plug as set forth in claim 23, wherein the depth d of the weld between said ground electrode and said metal shell is between from about 0.3 mm to about 1.5 mm.

25. (New) A spark plug as set forth in claim 23, wherein said metal shell is made of an Fe-base alloy containing one of 0.15% by weight or less of S, 0.35% by weight or less of Si, 0.25% by weight or less of C, 1.5% by weight or less of Mn, and 0.1% by weight or less of P.

26. (New) A spark plug as set forth in claim 23, wherein said metal shell is made of an Fe-base alloy containing 0.15% by weight or less of S, 0.35% by weight or less of Si, 0.25% by weight or less of C, 1.5% by weight or less of Mn, and 0.1% by weight or less of P.

27. (New) A spark plug as set forth in claim 23, wherein said ground electrode is made of an alloy containing a main component of 50 Wt % or more of Pt and an additive of at least one of Rh, Ir, Os, Ni, W, Pd, and Ru.

28. (New) A spark plug as set forth in claim 23, wherein said ground electrode is made of an alloy containing a main component of 50 Wt % or more of Ir and an additive of at least one of Rh, Pt, Os, Ni, W, Pd, and Ru.

29. (New) A spark plug as set forth in claim 23, wherein said ground electrode is made of an Ir alloy including a main component of 50 Wt% or more of Ir and connected directly to said metal shell through the laser fused weld.

30. (New) A spark plug as set forth in claim 23, wherein the center electrode includes a tip portion made of an Ir alloy.

31. (New) A spark plug as set forth in claim 23, wherein the center electrode includes a tip portion made of a Pt alloy.

32. (New) A spark plug as set forth in claim 23, wherein the laser fused weld includes a predetermined number of fused portions, the predetermined number decreased to increase the joint strength of the laser fused weld.